

In the United States Patent and Trademark Office

In re application of:

Inventors: MCGINNIS, Ralph Evan and  
MCGINNIS, Robert Owen

Title of the Invention: "Two-Dimensional Linkage Study Methods and Related  
Inventions"

U.S. Application No. 10/037718

Date of filing: 4 January 2002

Art unit: 1631

Examiner: Whaley, Pablo

**Supplemental Information Disclosure Statement (IDS)**

Honorable Commissioner of Patents c/o the Electronic Filing System (EFS) of the  
United States Patent and Trademark Office

Sir:

Attached hereto is Form PTO/SB/08B (7 sheets) and Form PTO/SB/08A (3  
sheets) listing documents believed relevant to the subject application. This  
Supplemental IDS is filed under 37 CFR 1.97(c)(2) and an appropriate fee under  
37 CFR 1.17(p) will be submitted.

It is respectfully requested that these documents be considered by the Examiner and an initialed copy of each form be returned to the undersigned.

This disclosure statement should not be construed as a representation that a search has been made or that no other material information as defined in 37 C.F.R. 1.56 (a) or similar requirements exists.

It is believed that this disclosure complies with the requirements of 37 C.F.R. 1.56, 1.97, 1.98 and the M.P.E.P. 609 and similar requirements. If for some reason the examiner considers otherwise, it is respectfully requested that the undersigned be notified.

Nonpatent documents AB through CM (i.e., AB, AC, AD,..., AZ, BA, BC, ..., BZ, CA, CB,..., CM) and patent documents PAA through PCA are listed in this Supplemental IDS on PTO IDS forms PTO/SB/08 a & b. **A copy of nonpatent documents AB through CM will be filed in the order listed.** Document BB is not listed and a copy of document BB will not be filed as this document was listed in a previous IDS and the document is considered substantially cumulative with an IDS document also previously submitted. More details regarding document BB are given below.

**A copy of each foreign and some of the American patent documents will generally be filed in the order listed, except that copies of the foreign patent documents will be filed together as a group. And copies of the American patent application documents will be filed together as a group.** Some of the documents may have markings thereon. No significance is meant to be attached to the markings.

No reference (or document) listed in the present Supplemental IDS or in any previous IDS for the present application or for any parent application is admitted to being prior art with respect to the invention or any claimed invention by its mention or discussion in the present Supplemental IDS or in any previous IDS for the present application or for any parent application. These documents or references are not necessarily analogous art.

**Nonpatent Literature**

**Nonpatent Literature IDS References cited in the Background or Description of the Application**

**Listed references AB through AQ are cited in the Background or Description of the application (10/037, 718).** More specifically reference AB is cited in footnote 7 of page 5 and endnote 2 of p. 49. References AC and AD are cited in footnotes 12 & 13 on p. 8.

**Listed references AE through AO are cited on pp. 49 & 50 in the endnotes for the application.** More specifically reference AE is cited in endnote 1 in connection with p. 25 line 10. References AF and AG are cited in endnotes 6 and 7 in connection with p. 26 lines 23 & 24. References AH through AO are cited in endnotes 8-13 on pp. 49 & 50 in connection with p. 35 lines 8-23.

**And finally references AP and AQ are cited on p. 47 lines 19-21.**

**The applicants believe that essentially all (almost all) of the references (patent & nonpatent documents) cited in the Background or Description of the present application (10/037, 718) are now included in the present Supplemental Information Disclosure Statement (IDS) of June 2009 or in the previous (Amended) IDS of March 2004 for the present application.**

**Nonpatent Literature IDS References related to the reference entitled "The**

**use of a genetic map of biallelic markers in linkage studies” that is in the  
Background of the Application**

The reference entitled “The use of a genetic map of biallelic markers in linkage studies” (Kruglyak, Nature Genetics, September 1997, vol.17, pp. 21-24) is cited in footnote 4 on p. 5 of the application. This Kruglyak reference is also reference F in the previous (Amended) IDS of March 2004. Each of the references in footnotes 10-16 on page 21 of this Kruglak reference is listed as an IDS reference for the present application. More specifically the references in footnotes 10, 11, 12, 13, 14 and 15, correspond to references AM, AR, AK, AS, AL, and AT respectively. The reference in footnote 16 corresponds to reference D1 in the IDS for the present application of May 2008.

**Nonpatent Literature IDS References related to the reference entitled “SNP  
Attack on Complex Traits” that is in the Description of the Application**

SNPs are known to be in general bi-allelic. The reference entitled “SNP Attack on Complex Traits” (Nature Genetics, Nov. 1998, vol. 20 no. 3, pp. 217-218) is cited in the Description of the Application in endnote 13 on p. 50 in connection with p. 35 line 23. This reference, “SNP Attack on Complex Traits,” is listed IDS reference AO. Listed references AU through BV are related to this reference (AO) in the following way. In general an author or one or more words in the Abstract or Title of each of references AU through BV matches, or essentially matches, a topic, one or more words or a person in “SNP Attack on Complex Traits.” (It is also possible that for one or more of listed IDS patent or nonpatent references other than references AU through BV, an author/inventor or words in the Abstract or Title of the one or more of listed references (other than a reference in AU through BV) matches, or essentially matches, a topic, words or a person in “SNP Attack on Complex Traits.”)

**Other Nonpatent Literature IDS References**

The title and an author for each of the nonpatent references, including for the remaining references BW through CI, is included on the PTO/SB/08b form sheets. For most of these nonpatent references the entire title fits in the allotted space on the PTO/SB/08b form sheets.

References CJ through CM were previously cited on page 11 in the RCE, Amendment/Response of September 2005 for the application in connection with the term "thousands."

Reference BB (unpublished manuscript of MCGINNIS, R.E., Annals of Human Genetics, vol. 62, pp. 159-179, (1998)) was previously cited in the (Supplemental) IDS of November 2005 for the present application. The (Supplemental) IDS of November 2005 included a Declaration of Inventor R.E. McGinnis in connection with reference BB. The single document BB is an unpublished manuscript (or version) of the inventor's paper MCGINNIS, R.E. Annals of Human Genetics, volume 62, pp. 159-179, (1998) listed as "Cite no. A" in the previously filed IDS of April 4, 2002 and Amended IDS of March 4, 2004 for the present application. This document A was already been considered by the Examiner Horlick as evidenced by a returned, initialed copy of previously filed IDS forms. No copy of document BB was included, or is included herewith, as it is substantively cumulative with document A. And a copy of document A has been previously submitted with a previously filed IDS for the present application. Document A is discussed in the background and specification of the patent application and is incorporated into the application by reference.

**Patent Documents**

Patent documents PAA through PCA are listed in this Supplemental IDS on PTO IDS form PTO/SB/08a. **A copy of each foreign and some of the American patent documents will be filed in the order listed except that copies of the foreign patent documents will be filed together as a group. And copies of the American patent application documents will be filed together as a group.** Some of the cited American patent applications are not available or only intermittently available through the USPTO's PAIR system. Some of these are available through the EPO or WIPO. For the Examiner's convenience, a copy of the following American patent application documents is provided:

**PAA\_** MCGINNIS ET AL, U.S. Prov. 60/076102,

**PAB\_** MCGINNIS ET AL, U.S. Prov. 60/076182,

**PAC\_** MCGINNIS ET AL, U.S. Prov. 60/086947,

**PAD\_** MCGINNIS ET AL, U.S. Prov. 60/107673,

**PAG\_** LANDER, U.S. Prov. 60/030455,

**PAL\_** GOELET & KNAPP, US Application Number: 08/145,145, and

**PAM\_** GOELET & KNAPP, US Application Number: 08 /216,538.

Some of the documents may have markings thereon. No significance is meant to be attached to the markings. These patent documents are not necessarily analogous art. No reference (or document) listed in the present Supplemental IDS or in any previous IDS for the present application or for any parent application is admitted to being prior art with respect to any claimed invention by its mention or discussion in the present Supplemental IDS or in any previous IDS for the present application or for any parent application.

For the Examiner's convenience a separate listing of these patent documents (in addition to PTO IDS form PTO/SB/08a) that includes title of the invention and, in many cases, filing dates of associated patent applications is provided below.

**Brief Comments on Patent Documents in the IDS**

Provisional applications PAA through PAD are priority documents for the present application and are cited in the first paragraph, page 1 of the present application. A copy of each of these Provisional applications is provided for the Examiner's convenience.

Documents PAE, PAF, PAH and PAI are cited in the Background of the present application on p. 8 lines 24-31. Document PAG is a provisional priority document for document PAF and a copy of PAG is provided for the Examiner's convenience.

Document PAJ was cited by the Examiner in the previous latest Office Action of 9/22/08. Document PCA was cited by the Examiner in the Office Action of 5/8/2002 for parent application 09/947, 768.

**Separate listing of these patent documents (in addition to PTO IDS form PTO/SB/08a) that includes title of the invention and filing dates of some associated patent applications**

**PAA\_** MGINNIS ET AL, U.S. Prov. 60/076102, filed 26 Feb 1998, published 2 Sept 1999, Improved Techniques for Linkage Studies

**PAB\_** MGINNIS ET AL, U.S. Prov. 60/076182, filed 27Feb1998, published 2 Sept 1999, Two Dimensional Techniques for Linkage Studies

**PAC\_** MGINNIS ET AL, U.S. Prov. 60/086947, filed 27May1998, published 2 Sept 1999, Two Dimensional Linkage Study Techniques

**PAD\_** MGINNIS ET AL, U.S. Prov. 60/107673 filed 7 Nov 1998, published 2 Sept 1999, Two Dimensional Linkage Study Tools

**PAE\_** VAN NESS ET AL., US Patent Number 5,667,976, Issue date: September 16, 1997 Solid supports for nucleic acid hybridization assays.

**PAF\_ LANDER & WANG, ET AL**, Published International Application WO 98/20165, Biallelic Markers, Filed: November 5, 1997, Publication Date: May 14, 1998,

**PAG\_ LANDER**, U.S. Prov. 60/030455, (priority application for the above PAF), filed November 6, 1996

**PAH\_ FREIMER, ET AL**, Published International Application WO 98/07887, Methods for treating bipolar mood disorder associated with markers on chromosome 18 p. Publication date: Feb. 26, 1998.

**PAI\_ KHRAPKO, ET AL**. US Patent Number 5,552,270, Issue date: September 3, 1996, Methods of DNA sequencing by hybridization based on optimizing concentration of matrix-bound oligonucleotide and device for carrying out same.

**PAJ\_ COHEN & BLUMENFELD**, Patent Number US 5,945,522, Publication date: August 31, 1999 (filed Dec 22, 1997)

**PAK\_ GOELET & KNAPP**, WO9512607 (A1), Single Nucleotide Polymorphisms and their use in Genetic Analysis, Publication date: 1995-05-11

**PAL\_ GOELET & KNAPP**, US Application Number: 08/145,145, filing date 11-03-1993, Publication date: 1995-05-11, Single Nucleotide Polymorphisms and their use in Genetic Analysis.

**PAM\_ GOELET & KNAPP**, US Application Number: 08 /216,538, filing date 03-23-1994, Publication date: 1995-05-11, Single Nucleotide Polymorphisms and their use in Genetic Analysis.

**PAN\_ CRONIN, ET AL.**, U.S. Patent 6,027,880 published February 22, 2000,



Filed: October 10, 1995, Arrays of nucleic acid probes and methods of using the same for detecting cystic fibrosis

**PAO\_** LOCKHART, ET AL., U.S. Patent 5,556,752, Issued September 17, 1996, Filed October 24, 1994, Surface-bound, unimolecular, double-stranded DNA

**PAP\_** LOCKHART, ET AL., US Patent 5,770,722 Issued June 23, 1998, Filed: June 13, 1996, Surface-bound, unimolecular, double-stranded DNA

**PAQ\_** STERN, ET AL., U. S. Patent 5,631,734, Issued May 20, 1997, Filed: February 10, 1994, Method and apparatus for detection of fluorescently labeled materials

**PAR\_** FODOR, ET AL., U.S. Patent 5,744,305, Issued April 28, 1998, Filed June 6, 1995, Arrays of materials attached to a substrate

**PAS\_** HOLMES, U.S. Patent 5,770,456, Issued June 23, 1998, Filed May 13, 1996, Cyclic nucleic acid and polypeptide arrays

**PAT\_** CHEE, ET AL., U.S. Patent 5,837,832, November 17, 1998, Filed: May 16, 1995, Arrays of nucleic acid probes on biological chips

**PAU\_** SAPOLSKY, ET AL., U.S. Patent 5,858,659, Issued January 12, 1999, Filed: November 29, 1995, Polymorphism detection (Same inventors and title as Publication info: EP0785280 (A2) published 1997-07-23, IDS sheet 3 of 3.)

**PAV\_** CHEE, ET AL., U. S. Patent 5,861,242, Issued January 19, 1999, Filed: January 9, 1997, Array of nucleic acid probes on biological chips for diagnosis of HIV and methods of using the same

**PAW\_** MCGALL, ET AL., U.S. Patent 6,156,501, Issued December 5, 2000,  
Filed: April 3, 1996, Arrays of modified nucleic acid probes and methods of use

**PAX\_** FODOR, ET AL., U.S. Patent 5,445,934, issued August 29, 1995, filed:  
September 30, 1992, Array of oligonucleotides on a solid substrate

**PAY\_** PERLIN, U.S. Patent 5,541,067, issued July 30, 1996, Filed: September  
29, 1994, Method and system for genotyping

**PAZ\_** PERLIN, U.S. Patent 5,876,933, Issued: March 2, 1999, Filed: July 24,  
1996, Method and system for genotyping

**PBA\_** PERLIN, U.S. Patent 6,054,268, issued April 25, 2000, Filed: October 21,  
1996, Method and system for genotyping

**PBB\_** DONG, ET AL., U.S. Patent 6,214,545, issued April 10, 2001, Filed: May  
5, 1997, Polymorphism analysis by nucleic acid structure probing

**PBC\_** CHEE, ET AL., U.S. Patent 7,339,049, issued March 4, 2008, Filed: May  
14, 1997, Polymorphisms in human mitochondrial DNA

**PBD\_** BROWN, ET AL., U.S. Patent 5,807,522, September 15, 1998, Filed: June  
7, 1995, Methods for fabricating microarrays of biological samples

**PBE\_** CHEE, ET AL., U.S. Patent 7,115,364, issued October 3, 2006, Filed:  
August 2, 1995, Arrays of nucleic acid probes on biological chips

**PBF\_** LIPSHUTZ, ET AL., U.S. Patent 6,300,063, issued October 9, 2001, Filed:  
May 8, 1997, Polymorphism detection

**PBG\_ KUMAR**, U. S. Patent 5,912,124, Issued June 15, 1999, Filed: June 14, 1996, Padlock probe detection

**PBH\_ TRACHTENBERG**, U.S. Patent 5,550,039, issued August 27, 1996, Filed: March 7, 1995, Oligonucleotide primers for HLA class I B locus DNA typing

**PBI\_ LANDEGREN**, U.S. Patent 5,618,701, issued April 8, 1997, Filed: May 5, 1995, Method of processing nucleic acid samples

**PBJ\_ LANDEGREN, ET AL**, Publication number: WO9522623 (A1), Circularizing Nucleic Acid Probe able to Interlock with a Target Sequence through Catenation, publication date 1995-08-24

**PBK\_ LANDEGREN, ET AL.**, U.S. Patent 5,876,941, issued March 2, 1999, Filed: June 24, 1997, Detection of mismatches by resolvase cleavage on a solid support

**PBL\_ LANDEGREN, ET AL**, Publication number: WO9614406 (A1), Publication date: 1996-05-17, Method of Preparing Oligonucleotide Probes or Primers, Vector therefor and Use thereof

**PBM\_ KOOL**, U.S. Patent 5,714,320, issued February 3, 1998, Filed: February 23, 1995, Rolling circle synthesis of oligonucleotides and amplification of select randomized circular oligonucleotides

**PBN\_ LIZARDI**, U.S. Patent 5,854,033, issued December 29, 1998, Filed November 21, 1995, Rolling circle replication reporter systems

**PBO\_ SODERLUND & SYVANEN**, U.S. Patent 6,013,431, Issued January 11, 2000, Filed: December 2, 1993 Method for determining specific nucleotide

variations by primer extension in the presence of mixture of labeled nucleotides and terminators

**PBP\_** SODERLUND & SYVANEN, U.S. Patent 7,132,235, Issued November 7, 2006, Filed: June 5, 1995, Reagent kit for determining specific nucleotide variations

**PBQ\_** CASKEY & METSPALU, ET AL, WO9500669 (A1), Publication date: 1995-01-05. Parallel Primer Extension Approach to Nucleic Acid Sequence Analysis

**PBR\_** DAY, ET AL, Gel-Matrix Electrophoresis, WO9618891 (A1), Publication date:1996-06-20.

**PBS\_** DEHLINGER, U.S. Patent 5,759,779, issued June 2, 1998, Filed: January 11, 1996, Polynucleotide-array assay and methods

**PBT\_** DEHLINGER, U.S. Patent 5,723,320, March 3, 1998, Filed: August 29, 1995, Position-addressable polynucleotide arrays

**PBU\_** KAMB U.S. Patent 5,869,242, issued February 9, 1999, Filed: September 18, 1995, Mass spectrometry to assess DNA sequence polymorphisms

**PBV\_** KOSTER, ET AL., U.S. Patent 6,043,031, issued March 28, 2000, Filed: March 18, 1996, DNA diagnostics based on mass spectrometry

**PBW\_** BAJAJ, U.S. Patent 5,846,710, December 8, 1998, Filed: August 6, 1993, Method for the detection of genetic diseases and gene sequence variations by single nucleotide primer extension

**PBX\_** KOSTER, U.S. Patent 5,691,141, issued November 25, 1997, DNA sequencing by mass spectrometry

**PBY\_ PINKEL, ET AL.**, U.S. Patent 6,210,878, issued April 3, 2001, Filed: August 8, 1997, Array-based detection of genetic alterations associated with disease

**PBZ\_ PINKEL, ET AL.**, U.S. Patent 6,146,593, issued November 14, 2000, Filed: July 24, 1997, High density array fabrication and readout method for a fiber optic biosensor

**PCA\_ SCHORK, ET AL.**, U.S. Patent 6,291,182 issued September 18, 2001, filed Nov. 10, 1999, Methods, Software and Apparati for Identifying Genomic Regions Harboring a Gene Associated with a Detectable Trait

**It was also previously respectfully requested that the documents in the earlier IDSs for the present application that were considered by the previous Examiner Horlick, be formally considered and initialed by the current Examiner and a copy of the previous IDS forms of March 2004 and November 2005 be returned to the undersigned.** In order to expedite this request, for the Examiner's convenience, the applicants may file copies of previously submitted references listed in the IDS form of March 2004 that are not readily available in the USPTO's PAIR system.

Respectfully submitted,

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**Enclosures:** IDS document listing, Forms PTO/SB/08b (7 sheets), PTO/SB/08a (3 sheets); **Attached separately:** copies of listed nonpatent references, all listed foreign and some listed American patent documents.